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ON A NEW TEIID AND AMPHIBIA FROM  
PANAMA, ECUADOR, AND PARAGUAY.

BY BENJAMIN SHREVE.

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WHILE identifying South American material in the Museum of Comparative Zoölogy several specimens not readily identifiable were put aside for further study. This paper deals with the outcome of these researches which also resulted in the detection of the Central American novelty described here.

I am indebted to Mr. A. Loveridge and Mr. H. Hechenbleikner for much valuable assistance.

***Neusticurus tuberculatus*, sp. nov.**

*Type*.—M. C. Z. no. 37,711, a male; about half grown, from Sarayacu, Ecuador, collected by O. C. Felton in 1933.

*Paratypes*.—M. C. Z. nos. 37,264-6, a male and two juvenile specimens collected along the Pastaza River from Canelos to the Marañon River, Ecuador, by C. Spencer, January, 1931, to August, 1932.

*Diagnosis*.—Allied to *Neusticurus ecpleopus ecpleopus* from which the new species differs in that its enlarged lateral scales are smaller, in that its enlarged temporal scales are smaller, tubercular, and more widely spaced, in that its frontonasal is undivided (in typical *ecpleopus* that scale is usually longitudinally divided). This new form also differs from typical *ecpleopus* in coloration.

*Description*.—Snout rather pointed; canthus rostralis strong; transparent disk of eyelid in one piece; diameter of ear opening about equal to that of the eye; frontonasal single; a pair of prefrontals; (the right prefrontal in paratype 37,264 is transversally divided, its posterior portion causing asymmetry of the anterior border of the frontal); frontal not grooved medially behind (in paratype 37,264 the frontal is grooved medially behind); frontoparietals followed by a large interparietal which has on each side a smaller parietal; interparietal produced posteriorly beyond the parietals; occipital scales smaller but very variable in shape and size in all specimens, roughly arranged in transverse rows; temporal scales granular with many larger

tubercular scales intermixed; 4 supraoculars; 4 superciliaries on left, 5 on right (also in paratype 37,266 while the rest of the paratypes have 4 on both sides); 7 upper labials (6 in paratypes); 6 lower labials (6 or 7 in paratypes); a single chin shield followed by 3 pairs; gular scales relatively large becoming larger as the collar is reached, some rather tubercular; collar consisting of about 6 large plates. Nape granular with about 8 longitudinal series of roundish keeled or tubercular scales; dorsal scales rather granular, similar to those of the nape; 4 equidistant dorsal rows of greatly enlarged, strongly keeled scales, 2 outer rows irregular in the type (much more regular in paratypes); sides with regular vertical folds each of which supports a row of enlarged keeled scales which are decidedly smaller than those of *N. ecpleopus ecpleopus*, nearer in size to those of *N. ecpleopus ocellatus*; each enlarged scale surrounded by much smaller, rather granular scales; abdominal plates squarish, in 8 longitudinal rows, plates of outer row on each side smaller, keeled, other ventrals smooth; 22 transverse rows (21-22 in paratypes); a pair of anterior preanal plates followed by 3 larger posterior ones in a transverse series, the median one smaller than the other two; limbs with large keeled scales above, those of the hind limbs intermixed with smaller scales in places; femoral pores 17 in paratype 37,264, in the other specimens undeveloped or so feebly developed that their number cannot be ascertained; caudal scales form regular annuli of which the lateral scales are strongly keeled, above a double denticulated crest.

*Coloration in alcohol.*—Above brown, spotted with darker; on each side about four black ocelli, with white centers, becoming more indistinct posteriorly; labials and chin shields heavily marked with black; lower surfaces spotted with black, tail strongly suffused with black below.

The coloration of the paratypes is substantially similar to that of the type. In paratype 37,264 there are several additional, ill-defined ocelli, also a very small one with a very large white center near the insertion of the fore limb and confluent with one of the main lateral ocelli, and another very small white-centered ocellus at the corner of the mouth on the right side; lower surfaces of breast and abdomen almost entirely free of markings. In the two very young specimens the sides are almost black resulting in the ocelli being very indistinct; heavily suffused with dark brown below.

The ocelli of this form are in general smaller, more numerous and their white centers larger in proportion to the amount of black than is the case with typical *ecpleopus*.

#### *Measurements.*

	Head and body	Tail	Total length
Type no. 37,711	47 mm.	78 mm.	125 mm.
Paratype no. 37,264	54 mm.	94 mm.	148 mm.
“ “ 37,265	31 mm.	part of tail missing	
“ “ 37,266	32 mm.	54 mm.	86 mm.

The tip of the tail is regenerated in the type and in no. 37,264.

*Remarks.*—Under ordinary circumstances this form would be described as a subspecies of *epleopus*. The reason for it not being described as such is that there is in the M. C. Z. a specimen of typical *epleopus*, from Canelos, which is only approximately twenty-four miles from Sarayaçu. This information therefore indicates that possibly the two forms may occur together. At all events material is insufficient to show that there is a subspecific intergradation between the two, hence, a binomial is better for this form at present.

***Hyla albopunctata* Spix.**

Owing to obscurities in the published description of this species, it seems advisable to redescribe it as under

*Hyla albopunctata* Spix, 1824, Spec. Nov. Test. Tan., p. 33, pl. vi, fig. 5: No type locality; Peters 1872, Monatsb. Akad. Wiss. Berlin, p. 207.

*Hyla oxyrhina* Reinhardt and Lütken 1861, Vidensk. Meddel. Kjöb., p. 189: Minas Geraes and Lagoa Santa, Brazil; Cope 1863, Proc. Acad. Nat. Sci. Phila., p. 48.

*Hypsiboas raniceps* Cope, 1862, Proc. Acad. Nat. Sci. Phila., p. 353: Rio Vermejo, Paraguay.

*Hyla boans* Boulenger (part) 1882, Cat. Batr. Sal. Brit. Mus., p. 360.

*Hypsiboas boans* <sup>Duellman</sup> Cope 1887, Proc. Am. Phil. Soc. 24, p. 48: Chupada, Matto Grosso, Brazil.

*Specimen.*—M. C. Z. no. 19,940, a gravid female, from Buenavista, North-east of Caaguazu, Department of Yhu, Paraguay, collected by Donald Wees, February 16, 1932.

*Diagnosis.*—Allied to *Hyla boans* and *Hyla spegazzini* but differs from both in its decidedly less extensively webbed feet, in its much longer fourth toe, two (instead of one) phalanges of which extend beyond the disk of the adpressed third and fifth fingers. This species also differs from both *spegazzini* and *boans* in coloration.

*Redescription.*—Tongue suboval, entire, and adherent; vomerine teeth between the large choanæ in two series; head slightly longer than broad; snout subacuminate, about one and a half times as long as the diameter of the orbit; the distance between the nostril and the orbit about equal to the diameter of the latter, canthus rostralis distinct and straight, loreal region slightly oblique and somewhat concave; interorbital space broader than the upper eyelid; tympanum very distinct about two-thirds the width of the eye; a rudiment of web between the three outer fingers, none between the

inner; toes about half webbed, the last two phalanges of the fourth toe free (the disk not being counted as a phalange); no rudiment of pollex<sup>1</sup>; disks of fingers and toes smaller than the tympanum; subarticular tubercles well developed; fourth toe long (see diagnosis); the tibiotarsal articulation of the adpressed hind limb reaches beyond the tip of the snout; skin smooth, granular on the belly and under the thighs; a dermal fold across the chest and another from eye over tympanum.

*Coloration in alcohol.*—Pinkish brown above marbled with darker; on the upper sides of the limbs the darker markings taken the form of irregular narrow crossbands; a black streak from the end of the snout to the eye; another, narrower, extending from the eye above the tympanum then widening until it ends slightly beyond the insertion of the fore limb; a narrow white line extends across the tibiotarsal articulation, along the tarsus and the outer edge of the fifth toe; a similar line above the anus; another on the forearm, extending along the outer edge of the outer finger; outer edges of limbs also washed with black in places; rear of femur black, abundantly and prominently spotted with white as are also the sides where the ground color is gray, or bluish gray, rather than black; upper lip white; lower lip white, bordered with blackish; below, immaculate except for a very fine punctillation of black on underside of lower jaw, throat and chest, and a small amount of bluish on belly.

*Measurements.*

	Length of head and body	Head	Hind limb	4th toe
No. 19,940	55 mm.	18 mm.	119 mm.	20 mm.

*Remarks.*—This species was considered by Boulenger to have been the same as *Hyla boans*. Although the two are closely related, in my opinion there is no doubt that it is specifically distinct not only from *boans* but also from *spagazzini* which seems to be the southern representative of *boans*.

The abnormally long second finger in Spix's plate of *Hyla albopunctata* is without doubt an error.

*Dendrobates minutus minutus*, sp. nov.

*Type.*—M. C. Z. no. 15,288, a gravid female from Barro Colorado Island, Panama Canal Zone, collected by E. R. Dunn in 1928.

*Paratypes.*—M. C. Z. no. 16,016 (2 specimens) from Nicensa San Blas, Panama, collected by T. E. Snyder, February 28, 1929.

*Diagnosis.*—Allied to *Dendrobates lugubris* but differs in much smaller size, the first finger not extending nearly as far as the second, and in some-

<sup>1</sup>According to Reinhardt and Lütken (*loc. cit.*) some specimens of this species have a rudiment of pollex.

what different coloration. In *lugubris* the first finger extends as far, or almost as far, as the second.

*Description*.—Snout truncate, a little longer than the diameter of the eye; loreal region vertical, interorbital space as broad as the upper eyelid, slightly broader in the paratypes; tympanum about half the diameter of the eye. Fingers rather short; the first extending much less far than the second; disks of toes smaller than those of fingers; subarticular tubercles not very distinct; two rather obscure metatarsal tubercles; the tarso-metatarsal articulation of the adpressed hind limb reaches the tip of the snout (beyond the tip of the snout in one paratype). Skin, above and below, somewhat granular.

*Coloration in alcohol*.—Dark brown, almost black, above, limbs somewhat lighter brown; a narrow, rather obscure, longitudinal grayish line commences near the tip of the snout, passes over the eyelid to the end of the back, anteriorly to the eyelid scarcely distinguishable; a third line, median in position, starts in the prefrontal region and terminates on a level with the insertion of the fore limbs; a short whitish streak on each side a short distance in front of the hind limbs. Below, dark brown, almost black, marbled with grayish, limbs lighter brown; upper lip pale grayish, this color extending beyond the lip as far as the shoulder.

The coloration of the two paratypes is very similar to that of the type, but the median line is shorter and the pale gray on the upper lip more obscure.

#### Measurements.

	Length of head and body	Head	Hind limb	4th toe
Type no. 15,288	15 mm.	6 mm.	21 mm.	4 mm.
Paratypes	13 mm.	5 mm.	17 mm.	3 mm.
no. 16,016	13 mm.	5 mm.	19 mm.	3 mm.

*Remarks*.—This small species has been confused with the young of *Dendrobates lugubris* in the past.

#### *Dendrobates minutus ventrimaculatus*, subsp. nov.

*Type*.—M. C. Z. no. 19,734, a male, from Sarayacu, Ecuador, collected by O. C. Felton in 1933.

*Paratypes*.—M. C. Z. nos. 19,735-41, with the same data and history as the type, and M. C. Z. nos. 19,684-90, including eleven uncatalogued specimens collected along the Pastaza River from Canelos to the Marañón River, Ecuador, by C. Spencer, January, 1931, to August, 1932. Gravid females are included in the paratype series.

*Diagnosis*.—Similar to *Dendrobates minutus minutus* but differs from it in coloration and in the generally larger disks of its fingers and toes.

*Coloration in alcohol.*—Black above, three prominent, longitudinal, grayish lines extending from the head almost the entire length of the back, the outermost starting about the posterior border of the upper eyelid, the median about on a level with the anterior border of the upper eyelid (in the paratypes these dorsal lines are often rather pinkish, in some the outer ones extending over the eyelid and meeting on the end of the snout). Toes brown, barred with darker. Below, including lower surfaces of limbs, gray heavily marked with roundish black spots, upper surfaces of limbs similarly though more obscurely spotted. Upper lip pale grayish, this color extending beyond the lip as far as the shoulder. Fifteen of the paratypes have substantially the same dorsal markings as the type; ten show an alternative set of dorsal markings. In these the median dorsal line is very much shortened and sends out a pair of branches on the head (sometimes one of the pair is missing); the back in such specimens may, or may not, be crossed by a transverse line including, or not including, the lower end of the median line; in addition the outermost lines throw out a curved branch onto the sides, also the outermost lines are often joined by a transverse line at their posterior ends. Even in this pattern further variations occur in the form of an extra transverse line, an incomplete transverse line, or branch lines failing to meet the main ones. This color pattern just described is apparently the female one of a sexual dichromatism. In addition, the fingers and toes and their respective disks appear to be larger in specimens with this type of coloration than are those with the other.

*Measurements.*

	Length of head and body	Head	Hind limb	4th toe
Type no. 19,734	18 mm.	6 mm.	21 mm.	3 mm.
Paratypes no. 19,735-41, 19,684-90 and 11 unnumbered	17-15 mm.	6.5 mm.	23-20 mm.	4-3 mm.

*Remarks.*—This subspecies has long been confused with *Dendrobates tinctorius* and formed part of Boulenger's *Dendrobates tinctorius* var. *D* (Catalogue of the *Batrachia Salientia*, 1882, p. 143). Apparently it was not realized that this was a small form and not the young of *tinctorius*.

*Phyllomedusa feltoni*, sp. nov.

*Type.*—M. C. Z. no. 19,941, a male from Sarayacu, Ecuador, collected by O. C. Felton in 1933.

*Diagnosis.*—Allied to *Phyllomedusa burmeisteri* from which it differs in that the vomerine teeth are more anterior, further apart, and hence nearer the choanæ, in its longer parotid glands in its slightly more acuminate snout; in its narrower interorbital space which is only the same width as

the upper eyelid instead of wider as is the case with *burmeisteri*. (This last character is probably of little diagnostic value.) In addition the two species in question differ slightly in coloration, the white markings in the new form being rather less distinct than the corresponding ones in *burmeisteri*.

*Description*.—Tongue entire; vomerine teeth in two oblique groups near the choanæ, the anterior edges of the former about on a level with the anterior borders of the latter; snout longer than the diameter of the eye, obliquely truncate; loreal region, nearly vertical; interorbital space as broad as the upper eyelid; tympanum about half the diameter of the eye. Fingers free, the first shorter than the second, the fourth nearly as long as the third; toes free, the first longer than the second; disks of fingers and toes much smaller than the tympanum; inner metatarsal tubercle not prominent; tibiotarsal articulation of the adpressed hind limb reaches the eye. Skin above minutely granular; parotids distinct, longer than the head; belly and lower surfaces of thighs granular.

*Coloration in alcohol*.—Dark blue above, excepting the three inner fingers and the four inner toes which are brownish white like the ventral surfaces; outer digits dark blue, or dark brown, marked with whitish brown; third toe slightly marked with dark blue or dark brown; a narrow white line on the outer side of the forearm and tarsus extending on to the outer digit; on the light-colored portions of the limbs and feet, near the point where the dorsal and ventral colorations meet, are many small, and some fairly large, purple-edged, whitish spots which may sometimes coalesce; a lateral row of similar spots. Below brownish white; lower lip, and to some extent the upper also, white; two prominent, purple-edged whitish spots on the under side of the lower jaw in addition to numerous other, rather ill-defined, whitish spots; a very large purple-edged spot with a prominent violet center on the chest; sides of belly marbled with purple.

#### *Measurements.*

	Length of head and body	Head	Hind limb	4th toe
Type no. 19,941	44 mm.	15 mm.	57 mm.	8 mm.

This species is named for the collector, Mr. O. C. Felton.

#### *Hyla leucophyllata sarayacuensis*, subsp. nov.

*Type*.—M. C. Z. no. 19,729, a gravid female, from Sarayacu, Ecuador, collected by O. C. Felton in 1933.

*Paratype*.—M. C. Z. no. 19,730, apparently a male, with the same data and history as the type.

*Diagnosis*.—Similar to typical *leucophyllata* but strikingly different in coloration.

*Coloration in alcohol.*—Light brown above, very minutely and densely punctulate with black resulting in a general effect, when not observed closely, of a uniform fairly dark brown; a triangular white spot covering most of the snout and on each side sending a branch on to the anterior part of the upper eyelid; upper eyelid suffused with dark gray; from the posterior part of the upper eyelid a narrow white streak extends backward over the tympanum and then broadens considerably to form an irregular, longitudinal blotch which extends along about one-third the length of the body; on the right side the narrow white streak above the tympanum is not joined to the longitudinal blotch; a few white spots of irregular outline on the limbs, one at the femoro-tibial articulation, one about the middle of the tibia, one near the tibiotarsal joint, smaller ones disposed as follows: the middle of the tarsus, the tarsometatarsal articulation, and the outer side of the foot; similar spots to those on the legs near the elbow, on the metacarpal area, and the outer side of the hand; a small white spot at the end of the coccyx, two very small ones on the back; all the white spots described are edged with darker; fingers and toes less densely punctulate than the back, inner fingers and toes little, or not at all. Below, immaculate, orange-brown, hind limbs with a purplish tinge, hinder side of thighs an immaculate purplish tinge.

The coloration of the paratype is similar to that of the type except that it is rather darker above and lighter below with the hind limbs showing more purplish; the white streak over the tympanum is not connected on either side with the scapular spot, which is smaller than that of the type. In addition the two very small spots present on the back of the type are absent in the paratype.

#### *Measurements.*

	Length of head and body	Head	Hind limb	4th toe
Type no. 19,729	33 mm.	10 mm.	55 mm.	9 mm.
Paratype no. 19,730	30 mm.	10 mm.	52 mm.	8 mm.

*Remarks.*—This subspecies was included under *Hyla leucophyllata* by Boulenger (Cat. Batr. Sal. Brit. Mus., 1882, p. 387-8), his specimens 'i' and 'k' from Sarayacu and Paitanga, Ecuador, respectively, representing this form, the coloration, according to his description, coinciding with that of the type series of this new race. His specimen 'h' from Sarayacu, while differently colored, also seems to differ in coloration from all other material representing *leucophyllata* and is probably only a color phase of this subspecies.

The type of this subspecies shows no vomerine teeth; while in



the paratype, though vomerine teeth appear to be present, they are not hard. The explanation for this is difficult to find as similar conditions exist in other amphibia in this same collection, these belonging to species which normally have perfectly well-developed vomerine teeth.

***Eleutherodactylus acuminatus*, sp. nov.**

*Type*.—M. C. Z. no. 19,951, a male (?), from Canelos, Ecuador, collected by O. C. Felton in April, 1932.

*Paratypes*.—M. C. Z. nos. 19,949-50, from Sarayacu, Ecuador, collected by O. C. Felton in 1933. Apparently 19,949 is a male, and 19,950 immature.

*Diagnosis*.—Allied to *Eleutherodactylus cajamarcensis* but with a very differently shaped snout, longer hind limbs, larger disks on the fingers and toes (possibly only due to preservation), and different coloration.

*Description*.—Tongue oval, entire (slightly nicked in paratype 19,950); vomerine teeth in two rather small groups behind the choanæ; snout sub-acuminate with a short appendage at its end (this appendage is less evident in paratype 19,949) snout slightly longer than diameter of eye (slightly longer, or about as long, in paratypes); canthus rostralis distinct, straight; loreal region *nearly* vertical; nostril nearer tip of snout than eye; inter-orbital space broader than upper eyelid; tympanum about half the diameter of eye (tympanum indistinct in type due to shrivelling; tympanum less than half in paratype 19,950); first finger shorter than second; toes quite free, disks moderate, roundish; subarticular tubercules indistinct; two metatarsal tubercules, outer rather indistinct; the tibiotarsal articulation of the adpressed hind limb reaches between the eye and the tip of the snout. Skin smooth above (very slightly warty in paratype 19,950); belly granular.

*Coloration in alcohol*.—Dorsal ground color yellowish white, head suffused with blackish this suffusion extending on to the anterior part of the dorsum sides and fore limbs, a few indistinct dark spots on upper side of hind limbs and back; ventral ground color the same as that of the dorsum lower side of underjaw suffused with brownish.

Coloration in paratypes substantially similar to that of type but ground color of both rather a light pinkish hue, and the head not suffused with black; in no. 19,949 a prominent black canthal streak extending through the eye over the tympanum to about half way along the side of the body; the streak just mentioned also present on the other paratype but is less extensive and not so prominent. In no. 19,950 a dark brown triangular spot between the eyes which sends out two longitudinal streaks of the same color along the back. In no. 19,949 back and upper part of head, obscurely spotted with black and limbs faintly banded with the same color.

*Measurements.*

	Length of head and body	Head	Hind limb	4th toe
Type no. 19,951	24 mm.	9 mm.	38 mm.	7 mm.
Paratype no. 19,950	15 mm.	6 mm.	23 mm.	3 mm.
“ “ 19,949	21 mm.	8 mm.	23 mm.	5 mm.

*Eleutherodactylus pseudoacuminatus*, sp. nov.

*Type*.—M. C. Z. no. 19,948, a gravid female, from Sarayacu, Ecuador, collected by O. C. Felton in 1933.

*Description*.—Similar to the preceding species but differs in the following characters: above decidedly warty, warts very numerous on right upper eyelid but less noticeable on the left eyelid, tongue decidedly broader and larger than that of *acuminatus* and *prominently* nicked behind; the canthus rostralis strongly marked and incurved and the loreal region is somewhat more oblique than in the preceding species.

*Coloration in alcohol*.—Coloration somewhat similar to that of preceding species but the ground color decidedly darker, being rather a brownish pink; the reason for the dorsal ground color appearing darker than in the previous species is obvious when the dorsum is closely scrutinized, then it will be seen to be densely and minutely punctillate with black; a narrow dark brown or black canthal streak and another similarly colored streak over the tympanum, an obscure dark streak between the eyes, a few dark brown bars on the upper lip and some irregular dark brown or black spots on back and limbs; below immaculate except for a faint black stippling on the lower side of the lower jaw and on the under side of the lower jaw and on the throat.

*Measurements.*

	Length of head and body	Head	Hind limb	4th toe
Type no. 19,948	20 mm.	8 mm.	31 mm.	5 mm.